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SHORT COMMUNICATION

THE UNUSUAL EGG-ROD OF THE SPIDER *HOMALOMETA CHIRIQUI* (ARANEAE, TETRAGNATHIDAE) AND OTHER BIOLOGICAL DATA

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ABSTRACT. Field observations of *Homalometa chiriqui* (Araneae, Tetragnathidae), a common habitant in coffee plantations in Chiapas, México, provide biological information on this poorly known species. Collection data revealed several generations per year. The web architecture and microhabitat selection of young juveniles differ from those of older juveniles and adult females. Females deposit their eggs inside the retreat forming a straight cylindrical egg-rod.

Keywords: *Homalometa*, egg laying, web architecture, microhabitat, life cycle

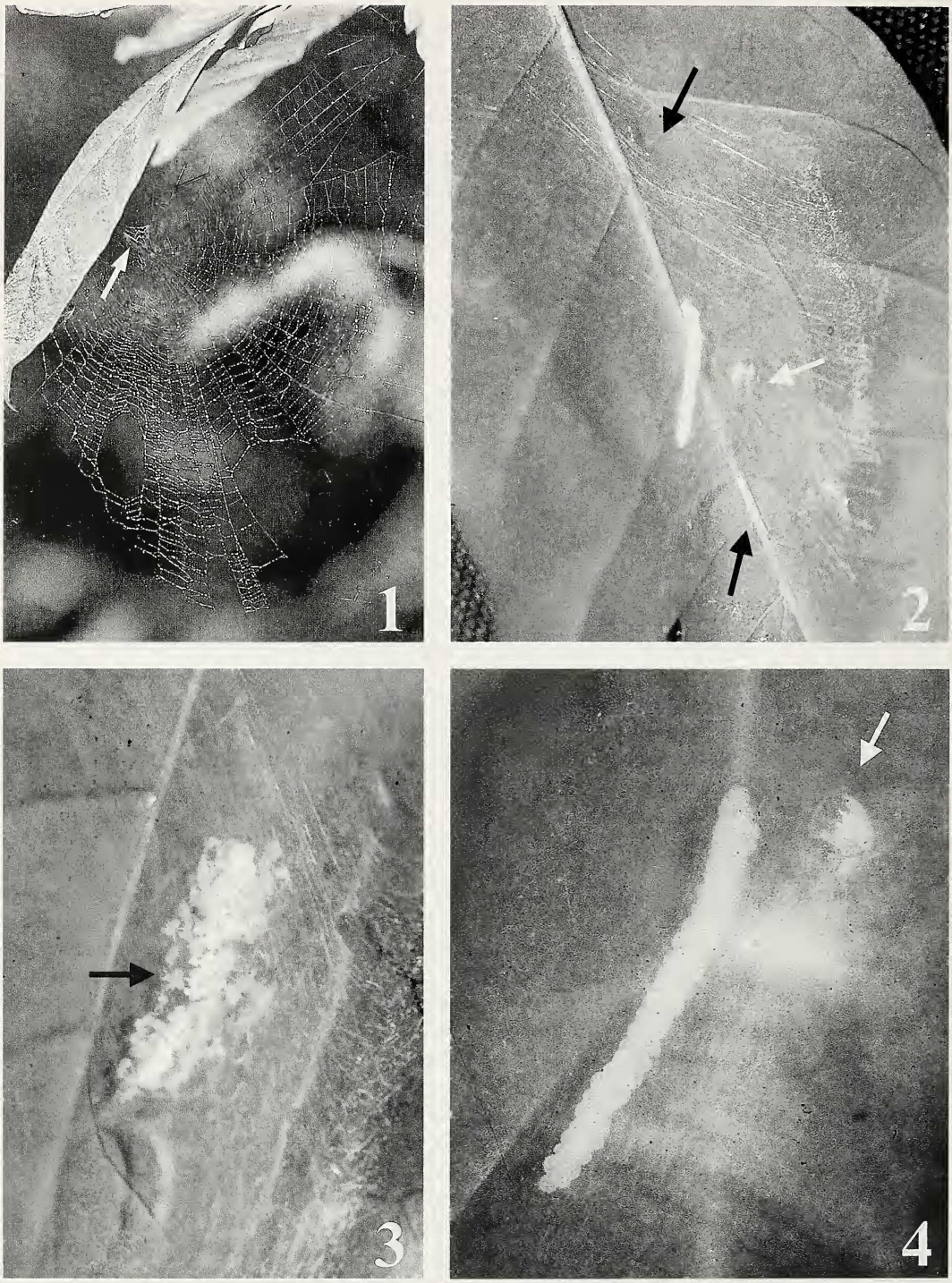
The American orb weaver genus *Homalometa* Simon 1897 (Tetragnathidae) is known only from three species: *H. nigritarsis* Simon 1897 from the Lesser Antilles (Island of Saint Vincent and Martinique), Panama and México (Levi 1986); *H. chiriqui* Levi 1986 from Panama, Costa Rica and México (Ibarra & García 1998); and *H. nossa* Levi 1986 from Brazil.

Very little is known about the biology of this genus: females of *H. chiriqui* have been "collected to the side of orb—both specimens with a set of eggs under a leaf; in the orb at night" (Levi 1986). No more biological information on this genus occurs in the literature.

During studies on the diversity and ecology of spiders of coffee plantations in the Soconusco region of Chiapas, México (15°10′N, 92°20′W), we found *H. chiriqui* as a common resident in two coffee plantations. The spiders were collected by hand, after measuring the diameter of its web, the distance from it to the ground, and noting the placement and orientation of its web and retreat, and presence of eggs or spiderlings. Voucher specimens of these spiders were deposited in the Colección de Arañas del Sureste de México (ECO-TA-AR) of El Colegio de la Frontera Sur, Tapachula, Chiapas, México.

In a two-year monthly sampling we found 481 specimens: 414 juveniles on webs, and 67 adults (54 females, 13 males). These specimens were found between 800–1000 m above sea level. All age classes and both adult sexes were found almost all year round, as well as females with eggs or young spiderlings inside the retreats (Table 1). This shows clearly that this species has several generations per year.

There were differences in form and orientation of the web, as well as in the microhabitat selection for the placement of the web and its associated retreat among younger and older juveniles and adult females. Young juveniles spin their small (2–4 cm in diameter) symmetrical and almost horizontal orb webs on the upper side of a coffee leaf, supported mainly from its lateral borders, with the spider's retreat below the web, on the leaf upper surface, where the spiderling is found most of the time. Larger juveniles and adult females spin a vertical asymmetrical orb web on the side of a coffee leaf (Fig. 1), also supported by other leaves and branches, with a mean vertical diameter of 11 cm (5–20 cm). In this case the retreat is built on the underside of a leaf in front of the web's hub and slightly inclined to the vertical. A signal line leads from the hub of the web to the entrance of the retreat. The retreat is an elongated vertical vault made of a thin layer of silk, almost transparent, with one exit hole for the spider on the upper side and the entrance on the lower side



Figures 1–4.—*Homalometa chiriqui*, female web, retreat with female, egg-rod and spiderlings. 1. Vertical asymmetrical web among coffee leaves showing signal line (arrow); 2. Retreat on underside of coffee leaf showing egg-rod with female on side (white arrow), entrance (lower black arrow) and exit holes (upper black arrow); 3. Recently emerged spiderlings (arrow) around egg chorions and exuviae; 4. View of egg-rod in detail and female (arrow).

Table 1.—Accumulated monthly abundance of juveniles on webs and adults (by sex) of *H. chiriqui,* in a two-year sampling at two coffee plantations in the Soconusco region of Chiapas, Mexico. The number of females found with egg-rod or spiderlings is noted in parentheses.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Juveniles	59	20	71	16	26	8	11	22	97	10	43	31	414
Females	5 + (2)	1	4	(2)	1	2 + (4)	6 + (4)	(1)	1 + (2)	0	9 + (2)	8	37 + (17)
Males	0	1	0	1	3	1	1	0	2	0	4	0	13
Total	66	22	75	19	30	15	22	23	102	10	58	39	481

(Fig. 2). The spider (juvenile or adult) is normally inside the retreat, but it drops very quickly when slightly disturbed if without offspring. If with eggs or spiderlings, the female is more reluctant to abandon its retreat. The mean distance of the web to the ground was 135 cm for both small juveniles (35–204 cm) and larger juveniles and female adults (30–350 cm).

Adult females deposit their eggs inside the retreat, but they do not make a conventional egg-sac. Instead, they place the eggs in a line over a thin layer of silk, forming a straight cylindrical "rod," three to four eggs in width (Figs. 2, 4). The eggs adhere to one another and are supported by the basal thin layer of silk. This is an unusual way to arrange the eggs, and no other species has been reported in the literature to put its eggs in a rod exactly like *H. chiriqui.* Females of the uloborid genus *Miagrammopes* and some species in the genus *Argyrodes* make cylindrical egg-sacs, but in these cases the eggs are visibly wrapped with silk (Exline & Levi 1962; Opell 1984, 1989). In contrast, the egg-rod of *H. chiriqui* did not appear to be covered by silk. After hatching, the young spiderlings of *H. chiriqui* stay in the rod by the side of the egg chorions and first exuviae, with the female guarding them (Fig. 3) until they molt and become larger. Then, they began to move on the retreat until they abandon it.

The change in the web architecture from horizontal and symmetrical webs (in young juveniles) to vertical and asymmetrical webs (in older juveniles and adult females) suggests that—in this taxonomic context—vertical and asymmetrical are the apomorphic conditions. It is possible that the vertical asymmetrical web and the egg-rod constitute generic synapomorphies that could be tested when more information on the other species of this genus be available.

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